Experiments Conducted at Shore Facilities

Column groups: **Summary** (Ship LP, Ship HP, Shore LP, Shore HP, Total) and **Shore Facility** — each facility (USGS-Woods Hole, Fugro/Geotek, Georgia Tech, Scripps, Rice, NETL) has: Low Pressure (LP), 2000 to 3000 psi (HP), Comment.

Test	Area	Specific test or value	Ship LP	Ship HP	Shore LP	Shore HP	Total	USGS LP	USGS HP	USGS Cmt	Fugro LP	Fugro HP	Fugro Cmt	GaTech LP	GaTech HP	GaTech Cmt	Scripps LP	Scripps HP	Scripps Cmt	Rice LP	Rice HP	Rice Cmt	NETL LP	NETL HP	NETL Cmt
1	Mechanical	Stress-strain curves			3	1	4	√	√	1,2	√		2,P	√		Y				√					
2		Tensile strength			0	0	0									MC parameters									
3		Shear Strength	1		2	1	4	√	√		√		2.14			MC parameters									
4		Compressive strengh			1	2	3	√	√						√	C parameters									
5		Young's moduli			2	1	3	√	√					√		Y									
6		Shear moduli			2	1	3	√	√					√		Y									
7		Bulk moduli			2	1	3	√	√					√		Y									
8		Poison's ratio			2	1	3	√	√					√		Y									
9		failure/stability envelopes			1	0	1	√		3						MC parameters									
10		permeability			3	0	3	√			√		1.14	√		Y				√					
11		shear strength (minivane)	1		3	0	4	√			√		2.4	√		Y									
12		Triaxial Compression	1		1	0	2				√		2.7			MC parameters				√					
13		Constraint modulus			1	0	1							√		Y									
14					0	0	0																		
15	Kinetics	Dissociation	1	1	1	1	4				√					N							√		
16		Kinetic rate constants			0	0	0									N									
17					0	0	0																		
18	Thermal	Thermal conductivity			4	1	5	√			√		1.27	√		Y				√			√		
19		Thermal diffusivity			0	0	0						4												
20		Heat capacity			0	0	0						4												
		IR imaging	1					√																	
21					0	0	0																		
22	Seismic	P and S-wave velocities		1	1	2	4		√	5				√	√	Y									
23		acoustic impedance			1	1	2		√	5				√		Y									
24					0	0	0																		
25	Electrical	Resistivity		1	2	2	5		√	6	√		1.25	√	√	Y									
26		real permittivity at microwave frequencies			1	0	1							√		Y									
		magnetic susceptibility			1						√														
27					0	0	0																		
28	Geological	Distribution of hydrates within sediments			1	1	2	Maybe	Maybe	7						N									
29		Pore filling			1	1	2	Maybe	Maybe							N									
30		Pore Pressure		1	0	0	1									N									
31		In-situ Temperature		1	0	0	1									N									
32		Optical observation / analyses			1	0	1							√		Y									
33		Hydrate Type (Raman spectroscopy)			1	0	1																√		
34					0	0	0																		
35	Formation Water	PH		1	3	0	4	√		8	√		1.3	√		Y									
36		Complete analysis			1	0	1	√		8						N	√			√					
37		Pore water extration		1	2	0	3				√		1.29	√		Y									
38		Electr. conductivity / ionic concentration			1	0	1							√		Y									
		Halogens, Ba, PO4																		√					
39					0	0	0																		
40	Sediment Description	Chemical analysis			0	0	0									Only carbonate content									
41		Grain size			3	0	3	√		9	√		1.9	√		Y									
42		water content			3	0	3	√			√		1.2	√		Y									
43		grain density			2	0	2	√						√		Y									
44		specific surface area			2	0	2	√						√		Y									
45		Density		1	2	0	3				√		1.6	√		Y									
46		Clay mineralogy			1	0	1									Only indirectly through Ss				√			√		
47		organic content			1	0	1							√		possibly									
48	Gas analysis	C1-C5		1	2	1	4	√	√	10						N							√		
49		C Isotope			1	1	2	√	√	11						N									
50					0	0	0																		
51	Biological	Methanogens			0	0	0									N									
		Clone library			0	0	0									N									
52					0	0	0																		

Fugro test #

Comment

1 All of the mechanical properties need small sample sizes except failure/stability envelopes

2 GHASTLI measurements use effective stress rather than total stress - is this okay?

3 Failure/Stability envelopes require foot-long whole rounds of core

4 Not ready to do this measurement in our labs but will have the ability in the future

5 Can do these in pressurized samples in GHASTLI

6 Can do resistivity in GHASTLI.

7 Might be able to do this with SEM or with CT technology - need to know more.

8 Pore water would be squeezed and archived on the ship for shore-based analysis. Analysis of sulfate and chlorinity values.

9 Grain size is done routinely on samples after they are run in GHASTLI.

10 Gas analysis of C1-C5 hydrocarbons, CO2, and H2S from canned core and free gas in the liners

11 Carbon isotope analysis of C1, C2, and C3 hydrocarbons